

83. The method of claim 79, wherein the protein is encoded by a nucleic acid introduced into the cell.

84. The method of claim 72, wherein the cell is a plant cell.

85. The method of claim 72, wherein the cell is an animal cell.

86. The method of claim 72, wherein the cell is a human cell.

REMARKS

Claims 1-56 were presented for examination with the application as filed. By virtue of this Preliminary Amendment, claims 4, 5, 19, 25, 26 and 28-56 are cancelled, claim 21 is amended, and new claims 57-86 are added. Accordingly, claims 1-3, 6-18, 20-24, 27 and 57-86 are presently pending in the application.

Support for new claims 57, 66 and 72 can be found, for example, at page 22, lines 8-15 of the specification, as well as in original claims 40-53 and 56.

The "Cross reference to related applications" section of the specification has been amended to properly refer to a § 119 (e) claim for benefit of the filing date of a provisional application. No new matter is added.

CONCLUSION

Applicants look forward to action on the merits. Please direct all correspondence
to:

Dahna S. Pasternak
Robins & Pasternak
545 Middlefield Road, Suite 180
Menlo Park, CA 94025

Telephone: (650) 325-7812
FAX (650) 325-7823

Respectfully submitted,

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By: Sean Brennan

Sean M. Brennan
Registration No. 39,917

Sangamo BioSciences, Inc.
501 Canal Blvd., Suite A100
Richmond, California 94804
Telephone: (510) 970-6000 ext. 252
Facsimile: (510) 236-8951

VERSION SHOWING CHANGES MADE

In the specification

On page 1, lines 5-7:

This application claims [priority] benefit under the provisions of 35 U.S.C. § 119 [to] of U.S. Provisional Patent Application Serial No. 60/200,590, filed April 28, 2000; the disclosure of which is hereby incorporated by reference in its entirety.

In the claims

21. (Amended) A method for binding a ZFP transcription factor to a binding site, wherein the binding site is located within a region of interest in cellular chromatin, wherein the method comprises:

- (a) identifying an accessible region within the region of interest;
 - (b) identifying a zinc finger protein (ZFP) binding sequence within the accessible region;
 - (c) designing or selecting a ZFP to bind to the binding sequence; and
 - (d) introducing the ZFP into the cell;
- whereby the ZFP binds to the binding site.

PRESENTLY PENDING CLAIMS

1. A method for binding an exogenous molecule to a binding site, wherein the binding site is located within a region of interest in cellular chromatin, wherein the method comprises:

- (a) identifying an accessible region within the region of interest;
- (b) identifying a target site for the exogenous molecule within the accessible region; and
- (c) introducing the exogenous molecule into the cell;

whereby the exogenous molecule binds to the binding site.

2. The method according to claim 1 wherein the cellular chromatin is in a chromosome.

3. The method according to claim 1 wherein the accessible region is a nuclease hypersensitive region.

4. (Cancelled)

5. (Cancelled)

6. The method according to claim 1, wherein the exogenous molecule is a protein.

7. The method according to claim 6 wherein the protein performs a process selected from the group consisting of replication, recombination, integration, DNA repair, transcriptional regulation and chromatin remodeling.

8. The method according to claim 6 wherein the protein is used for detection of a target sequence.

9. The method according to claim 7, wherein the protein is a transcription factor.

10. The method according to claim 9, wherein the transcription factor is a zinc finger protein (ZFP).

11. The method according to claim 6 wherein the protein is encoded by an exogenous nucleic acid introduced into the cell.
12. The method according to claim 1, wherein the cell is a eukaryotic cell.
13. The method according to claim 12, wherein the cell is a plant cell.
14. The method according to claim 12, wherein the cell is a mammalian cell.
15. The method according to claim 14, wherein the cell is a human cell.
16. The method according to claim 1, wherein the binding site is in a coding region.
17. The method according to claim 1, wherein the binding site is in a non-coding region.
18. The method according to claim 10, wherein the binding site comprises the sequence 5'-NNx aNy bNz c-3', wherein
each of (x,a), (y,b) and (z,c) is (N,N) or (G,K); and
at least one of (x,a), (y,b) and (z,c) is (G,K); wherein N is any nucleotide and K is either G or T.
19. (Cancelled)
20. The method according to claim 11 wherein the nucleic acid is introduced into the cell by a method selected from the group consisting of lipid-mediated gene transfer, electroporation, direct injection, particle bombardment, calcium phosphate co-precipitation, DEAE-dextran mediated transfer, and viral vector-mediated transfer.
21. (Amended) A method for binding a ZFP transcription factor to a binding site, wherein the binding site is located within a region of interest in cellular chromatin, wherein the method comprises:
 - (a) identifying an accessible region within the region of interest;
 - (b) identifying a zinc finger protein (ZFP) binding sequence within the accessible region;

(c) designing or selecting a ZFP to bind to the binding sequence; and

(d) introducing the ZFP into the cell;

whereby the ZFP binds to the binding site.

22. The method according to claim 21 wherein the ZFP is introduced into the cell by introducing a DNA construct encoding the ZFP into the cell under conditions in which the construct expresses the ZFP.

23. The method according to claim 21 wherein the cellular chromatin is in a chromosome.

24. The method according to claim 21 wherein the accessible region is a nuclease hypersensitive region.

25. (Cancelled)

26. (Cancelled)

27. The method according to claim 21, wherein the binding site comprises the sequence 5'-NNx aNy bNz c-3', wherein

each of (x,a), (y,b) and (z,c) is (N,N) or (G,K); and

at least one of (x,a), (y,b) and (z,c) is (G,K); wherein N is any nucleotide and K is either G or T.

28-56. (Cancelled)

57. (New) A complex between an exogenous molecule and a binding site in cellular chromatin, wherein the binding site is in an accessible region of cellular chromatin.

58. (New) The complex of claim 57, wherein the exogenous molecule is a nucleic acid.

59. (New) The complex of claim 58, wherein the nucleic acid is a triplex-forming nucleic acid.

60. (New) The complex of claim 57, wherein the exogenous molecule binds in the minor groove of double-stranded DNA.

61. (New) The complex of claim 57, wherein the exogenous molecule is a small molecule therapeutic.

62. (New) The complex of claim 57, wherein the exogenous molecule is a protein.

63. (New) The complex of claim 62, wherein the protein is a transcription factor.

64. (New) The complex of claim 63, wherein the transcription factor is a zinc finger protein (ZFP).

65. (New) The complex of claim 57, wherein the accessible region is a nuclease hypersensitive region.

66. (New) A cell comprising the complex of claim 57.

67. (New) The cell of claim 66, wherein the exogenous molecule is a protein.

68. (New) The cell of claim 67, wherein the protein is encoded by a nucleic acid introduced into the cell.

69. (New) The cell of claim 66, wherein the cell is a plant cell.

70. (New) The cell of claim 66, wherein the cell is an animal cell.

71. (New) The cell of claim 66, wherein the cell is a human cell.

72. (New) A method for modulating the transcription of a gene in a cell, wherein the gene is present in a chromosome of the cell, by binding an exogenous molecule to a binding site in the chromosome, wherein the binding site is in an accessible region of cellular chromatin.

73. (New) The method of claim 72, wherein modulation comprises activation of transcription.

74. (New) The method of claim 72, wherein modulation comprises repression of transcription.

75. (New) The method of claim 72, wherein the exogenous molecule is a nucleic acid.

76. (New) The method of claim 75, wherein the nucleic acid is a triplex-forming nucleic acid.

77. (New) The method of claim 72, wherein the exogenous molecule binds in the minor groove of double-stranded DNA.

78. (New) The method of claim 72, wherein the exogenous molecule is a small molecule therapeutic.

79. (New) The method of claim 72, wherein the exogenous molecule is a protein.

80. (New) The method of claim 79, wherein the protein is a transcription factor.

81. (New) The method of claim 80, wherein the transcription factor is a zinc finger protein (ZFP).

82. (New) The method of claim 72, wherein the accessible region is a nuclease hypersensitive region.

83. (New) The method of claim 79, wherein the protein is encoded by a nucleic acid introduced into the cell.

84. (New) The method of claim 72, wherein the cell is a plant cell.

85. (New) The method of claim 72, wherein the cell is an animal cell.

86. (New) The method of claim 72, wherein the cell is a human cell.